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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/765,056	01/28/2004	Hiroaki Mochizuki	118328	9458

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EXAMINER	
NGO, HUYEN LE	

ART UNIT	PAPER NUMBER
2871	

DATE MAILED: 08/18/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

AK

Office Action Summary	Application No.	Applicant(s)	
	10/765,056	MOCHIZUKI, HIROAKI	
	Examiner	Art Unit	
	Julie-Huyen L. Ngo	2871	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *11 July 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-11* is/are pending in the application.

4a) Of the above claim(s) *7 and 9* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-6,8 and 11* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *1/28/04*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Priority

Receipt is acknowledged of paper submitted under 35 U.S.C. 119(a)-(d), which paper has been placed of record in the file.

Information Disclosure Statement

The information disclosure statement filed January 28, 2004 has been considered.

Election/Restrictions

Applicant's election with traverse of Species C (claims 1011; Fig, 6) in Paper on 11 July 2005 is acknowledged.

Applicant's arguments regarding the restriction requirement have been considered; however, the traversal was on the grounds that there is no serious burden on the Examiner in examining all of claims 1-11 together. This is not found persuasive since the LCD comprising a light shield under TFT in peripheral region does not required a light shield under TFT at corner of data and gate lines as disclosed in Akihiro et al. (JP2001-305585).

Therefore, the requirement is deemed proper and is considered to be final.

Further more, the features recited in claims 7 and 9 read on Species B, which is a non-elected species.

Therefore, claims 7 and 9 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected species, there being no allowable

generic or linking claim. Accordingly, ONLY claims 1-6, 8 and 10-11 are pending and read on the elected Species.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-3, 5-6, 8 and 11 ar9e rejected under 35 U.S.C. 102(b) as being anticipated by Akihiro et al. (JP2001-305585).

With respect to claims 1, 2 and 11, Akihiro et al. teach (Figs. 1-3) an electro-optical device, comprising:

- a substrate 1;
- a data line 11;
- a scanning line 12 extending in a direction crossing the data line;
- a first switching element 13 to which a scanning signal is applied by the scanning line; and
- a pixel electrode 14 to which an image signal is applied, by the data line, via the first switching element,
- the substrate having an image display region defined as a region to form the pixel: electrode and the first switching element, and a peripheral region to define the surrounding area of the image display region,

- the peripheral region has a second switching element 120/130 to determine whether the image signal will be applied to the data line, and a light shielding film which is formed with the second switching element and the interlayer insulating film therebetween, and
- the light shielding film (internal protection-from light layer 5, external protection-from light layer 6 and light shield 24) overlaps at least a portion of the second switching element in plan view.

Wherein

Claim 3:

- the second switching element (analog switch circuit) having a laminated structure of a semiconductor layer, an insulating film, and an electrode film, and the light shielding film overlapping at least a portion of the electrode film in plan view.

Claim 5:

- the light shielding film and the electrode film being rectangular in plan view, and the light shielding film overlapping the electrode film in the long side of a rectangle in plan view.

Claim 8:

- the light shielding film being made of light shielding material (metal thin films MoW Cr black resin).

Claim 6:

- the second switching element being inherently formed at the same time as the forming of the first switching element of the electro-optical device because the

screen display field A, the scanning-line drive circuit 120 and the signal-line drive circuit 130, in which the display pixel section 110 was formed, were formed.

Claims 1-3, 5-6, 8 and 10-11 are rejected under 35 U.S.C. 102(b) as being anticipated by Murade (US6330044B1).

With respect to claims 1, 2 and 11, Murade teach (Figs. 1-3) an electro-optical device, comprising:

- a substrate 300;
- a data line 3;
- a scanning line 2 extending in a direction crossing the data line;
- a first switching element (pixel switching TFT 102) to which a scanning signal is applied by the scanning line; and
- a pixel electrode 14 to which an image signal is applied, by the data line, via the first switching element,
- the substrate having an image display region defined as a region to form the pixel: electrode and the first switching element, and a peripheral region to define the surrounding area of the image display region,
- the peripheral region has a second switching element (peripheral driving circuits 103-104) to determine whether the image signal will be applied to the data line, and a light shielding film which is formed with the second switching element and the interlayer insulating film there between, and

- the light shielding film 7 overlaps at least a portion of the second switching element in plan view.

Wherein

Claim 3:

- the second switching element (analog switch circuit) having a laminated structure of a semiconductor layer, an insulating film, and an electrode film, and the light shielding film overlapping at least a portion of the electrode film in plan view.

Claim 5:

- the light shielding film and the electrode film being rectangular in plan view, and the light shielding film overlapping the electrode film in the long side of a rectangle in plan view.

Claim 8:

- the light shielding film being made of light shielding material.

Claim 6:

- the second switching element being inherently formed at the same time as the forming of the first switching element of the electro-optical device because the screen display field A, the scanning-line drive circuit 104 and the signal-line drive circuit 103, in which the display pixel section was formed, were formed.

Claim 10:

- the thickness of layer 11 is 1000 angstroms=100nm being less than 3000nm, thus the distance between the light shielding film and the second switching element being less than 3000 .

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Akihiro et al. (JP2001-305585) as applied to 3 above, and further in view of Sato (US6525787B1).

Akihiro et al. fail to disclose the switching element including the semiconductor layer having a channel region, and a source region and a drain region with the channel region therebetween, the electrode film being formed in a portion corresponding to the channel region, and the light shielding film being formed in portions corresponding to the source region and the drain region but is not formed in a portion corresponding to the channel region.

Sato teaches ((col. 2, lines 21-22 and col. 4 lines 6-9) forming a switching element including a semiconductor layer having a channel region, and a source region and a drain region with the channel region there between, the electrode film being formed in a portion corresponding to the channel region, and the light shielding film 31 being formed in portions corresponding to the source region 26 and the drain region 27, but is not formed in a portion corresponding to the channel region 25 for obtaining

suppression of a light leakage current at least at the edge parts of the source/drain of the transistor.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to further modify an electro-optical device as Akihiro et al. disclosed with a switching element including a semiconductor layer having a channel region, and a source region and a drain region with the channel region there between, an electrode film being formed in a portion corresponding to the channel region, and a light shielding film being formed in portions corresponding to the source region and the drain region but is not formed in a portion corresponding to the channel region for obtaining suppression of a light leakage current at least at the edge parts of the source/drain of the transistor, as taught by Sato.

Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Murade (US6330044B1) as applied above to claim 3, further in view of Sato (US6525787B1).

Murade fails to disclose that the switching element including the semiconductor layer having a channel region, and a source region and a drain region with the channel region there between, the electrode film being formed in a portion corresponding to the channel region, and the light shielding film being formed in portions corresponding to the source region and the drain region but is not formed in a portion corresponding to the channel region.

Sato teaches (col. 2, lines 21-22 and col. 4 lines 6-9) forming a switching element including the semiconductor layer having a channel region, and a source region and a drain region with the channel region there between, the electrode film being formed in

a portion corresponding to the channel region, and the light shielding film 31 being formed in portions corresponding to the source region 26 and the drain region 27 but is not formed in a portion corresponding to the channel region 25 for obtaining suppression of a light leakage current at least at the edge parts of the source/drain of the transistor.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to further modify an electro-optical device as Murade disclosed with a switching element including a semiconductor layer having a channel region, and a source region and a drain region with the channel region there between, the electrode film being formed in a portion corresponding to the channel region, and the light shielding film being formed in portions corresponding to the source region and the drain region but is not formed in a portion corresponding to the channel region for obtaining suppression of a light leakage current at least the edge parts of the source/drain of the transistor, as taught by Sato.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure:

Shin et al. (US 5929501 A) disclose a liquid crystal display device including light shielding layer consisting of a body and a plurality of protrusions, and the body being elongated along each data line and overlapped with the portions of pixel electrodes and each protrusion protruded from the body to each TFT.

Yamazaki (US 5952708 A) discloses a display device including a chromium film formed on the second interlayer insulating film 213, and patterned to form a light-shielding film 214 which serves as both a light-shielding film and a black matrix for a thin film transistor. Then, a third interlayer insulating film 215 is formed from the same resin material film as the second interlayer insulating film 213.

Hayaski et al. (US 6040200 A) disclose a method of fabricating a light valve device comprises forming a substrate having stacked layers including a light-shielding thin film layer, an insulating film, and a single crystalline semiconductor thin film stacked in this order on a transparent support substrate.

Contact Information

Any inquiry concerning this communication or earlier communications from the Examiner should be directed to Julie-Huyen L. Ngo whose telephone number is (571) 272-2295. The Examiner can normally be reached on T-Friday.

If attempts to reach the Examiner by telephone are unsuccessful, the Examiner's Supervisor, Mr. Robert H. Kim can be reached at (571) 272-2293.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (571) 272-1562.

August 16, 2005

Julie -Huyen L. Ngo
Primary Examiner
Art Unit 2871